

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JACOB EMERT, ROBERT D. LUNDBERG
and MALCOLM WADDOUPS

Appeal No. 1996-0214
Application 07/755,603¹

ON BRIEF

Before PAK, OWENS and LIEBERMAN, Administrative Patent Judges.
OWENS, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of

¹ Application for patent filed September 5, 1991. According to the appellants, the application is a continuation of Application 07/613,330, filed November 8, 1990, now abandoned; which is a continuation of Application 07/488,320, filed March 5, 1990, now abandoned; which is a continuation of Application 07/235,920, filed August 23, 1988, now abandoned; which is a continuation of Application 07/032,066, filed March 27, 1987, now abandoned; which is a continuation of Application 06/754,001, filed July 11, 1985, now abandoned.

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claims 27, 30-33, 44, 45, 48, 56-58, 65-67, 71-86 and 88-90, and refusal to allow claims 49 and 87 as amended after final rejection. These are all of the claims remaining in the application.

THE INVENTION

Appellants claim a lubricating oil composition which includes a lubricating oil, a metal-containing detergent or anti-rust additive, and an oil soluble dispersant which is the oil soluble reaction product of a recited hydrocarbyl substituted C_4 to C_{10} dicarboxylic acid producing material and a specified basic reactant. Appellants also claim a method wherein the above reaction product is included in an additive concentrate. Claim 27 is illustrative and reads as follows:

27. A lubricating oil composition comprising (i) a lubricating oil, (ii) a metal-containing detergent or anti-rust additive and (iii) an oil soluble dispersant, the dispersant comprising the oil soluble reaction product of a reaction mixture comprising:

(a) a hydrocarbyl substituted C_4 to C_{10} dicarboxylic acid producing material formed by reacting olefin polymer of C_2 to C_{10} monoolefin having a number average molecular weight of about 1500 to 5,000 and a C_4 to C_{10} monounsaturated acid material, wherein said substituted material is characterized by a functionality ratio of from about 1.05 to 1.25 dicarboxylic acid producing moieties per molecule of said olefin polymer used in the

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reaction; and

(b) a basic reactant selected from the group consisting of amine, alcohol, amino alcohol and mixtures thereof.

THE REFERENCES

Rense 1965	3,215,707	Nov. 2,
Le Suer 1966	3,254,025	May 31,
Palmer, Jr. 1975	3,912,764	Oct. 14,
Okamoto et al. (Okamoto) 1976	3,950,341	Apr. 13,
Cullen et al. (Cullen) 1976	3,960,889	Jun. 1,
Meinhardt et al. (Meinhardt) 1980	4,234,435	Nov. 18,
Robson 1985	4,502,971	Mar. 5,

THE REJECTIONS

Claims 27, 30-33, 44, 45, 48, 49, 56-58, 65-67 and 71-90 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Meinhardt. The claims stand rejected under 35 U.S.C. § 103 as follows: claims 27, 32, 33, 44, 45, 48, 49, 56-58, 65-67 and 71-90 over Rense in view of Cullen and Palmer; claims 27, 30-33, 44, 45, 48, 49, 56-58, 65-67 and 71-90 over Okamoto or Robson in view of Cullen and Palmer; claims 27, 30, 44, 45,

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48, 49, 56-58, 65-67 and 71-90 over Le Suer in view of Cullen and Palmer.^{2,3}

OPINION

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that the

aforementioned rejections are not well founded. Accordingly, we reverse these rejections.

Rejection under 35 U.S.C. § 102(b)

In order for a claimed invention to be anticipated under 35 U.S.C. § 102(b), all of the elements of the claim must be found in one reference. *See Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Appellants' claims require that the hydrocarbyl substituted dicarboxylic acid producing material has a

²Le Suer was erroneously omitted from the statement of the rejection in the examiner's answer (page 7).

³ The rejections of claims 27, 44 and 79 under 35 U.S.C. § 112, first paragraph, have been withdrawn (answer, page 3).

functionality ratio of from about 1.05 to 1.25 dicarboxylic acid producing moieties per molecule of olefin polymer used in the reaction. The "used in the reaction" phrase indicates that the functionality ratio is based on the total of both the reacted and unreacted polyolefin (specification, page 8, lines 17-22).

Meinhardt's acylating agent has within its structure an average of at least 1.3 succinic groups for each equivalent weight of substituent group, wherein the substituent group is derived from a polyalkylene (col. 3, lines 52-61; col. 4, lines 18-20).

Appellants argue that Meinhardt's ratio, like appellants' ratio, is a functionality ratio, rather than being a succination ratio, and is different in quantity than appellants' functionality ratio (brief, pages 9-10). A succination ratio differs from appellants' functionality ratio in that the succination ratio is based upon only the reacted polymer, i.e., that which is substituted with succinic groups

(brief, page 9).⁴ Thus, a succination ratio is equal to the functionality ratio if all of the polymer reacts, and otherwise is greater than the functionality ratio. See *id.*

It is argued in Texaco's opposition to appellants' assignee's European patent application 0 208 560 (attachment to paper no. 17 filed August 15, 1994) that Meinhardt's ratio is a succination ratio. The reasoning relied upon in the opposition is that since the ratio based on the reacted polymer is of interest, Meinhardt's ratio must be a succination ratio. In the response to the opposition, appellants' assignee argues that Meinhardt's ratio is a functionality ratio (attachment to paper no. 17 filed August 15, 1994). The argument in appellants' brief

is similar to that in the response to the opposition. This argument is that because Meinhardt's examples do not disclose the fraction of the polymer which has been substituted with succinic groups, the examples permit the functionality ratio,

⁴The formulas for calculating a functionality ratio and a succination ratio are shown in appellants' brief (page 9).

but not the succination ratio, to be calculated. It is also argued in the opposition and the brief that even if Meinhardt discloses a succination ratio, then because the fraction of the polymer which has been substituted with succinic groups is not reported, it is impossible to determine whether the corresponding functionality ratio falls within the range recited in appellants' claims.

Meinhardt's claims 1, 50 and 59 cut against appellants' argument because they recite that the substituted acylating agents "consist of" substituent groups, derived from polyalkene, and succinic groups, and have at least 1.3 succinic groups for each equivalent weight of substituent groups. The "consists of" language indicates that the acylating agents all have both substituent groups and succinic groups. Thus, these claims indicate that Meinhardt's ratio is a succination ratio. Also, the disclosures that the substituent groups are "derived from" polyalkene and that there are at least 1.3 succinic groups for each equivalent weight of substituent group (col. 3, lines 52-61) indicate that the ratio is based on substituent groups formed from

polyalkylene, rather than being based on both substituent groups and polyalkene.

To decide the issue of anticipation we need not make an ultimate finding as to which ratio Meinhardt discloses because, first, if Meinhardt's ratio is a functionality ratio, it is different in quantity than that recited in appellants' claims and, therefore, Meinhardt does not anticipate appellants' claimed invention. Second, even if Meinhardt discloses a succination ratio, it would not be possible to calculate the corresponding functionality ratio absent a disclosure of the fraction of the polymer which is substituted with succinic groups. Thus, it would not be possible to determine whether Meinhardt anticipates appellants' claimed invention.

The examiner argues that Meinhardt's functionality ranges are 1.10 to 2.62 and, therefore, overlap with appellants' range of about 1.05 to 1.25 (answer, page 8). The range of 1.10 to 2.62 is not that of Meinhardt. It is a range of succination ratios calculated by appellants from appellants' range of functionality ratios, assuming that 50% to 95% of the

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polymer reacts (amendment filed January 28, 1993, paper no. 11, pages 30-31).

The examiner argues that Dr. Muschke establishes that appellants' examples 4 and 6-9 have functionality ratios of 1.34 to 1.58 which overlap Meinhardt's range (answer, page 9). The response to the opposition to EP 0 208 560 indicates that Dr. Muschke is a patent attorney. Thus, the evidence relied upon by the examiner appears to be mere attorney argument. Furthermore, the ratios of 1.34 to 1.58 are succination ratios calculated from appellants' functionality ratios. The relevant inquiry is whether Meinhardt's ratios, if they are succination ratios, correspond to functionality ratios which fall within the range recited in appellants' claims. As discussed above, this determination cannot be made because Meinhardt does not disclose the fraction of the polymer which is substituted with succinic groups.

For the above reasons, we find that the examiner has not carried her burden of establishing a *prima facie* case of anticipation over Meinhardt of the invention recited in any of

appellants' claims. We therefore reverse the rejection under 35 U.S.C. § 102(b).

Rejections under 35 U.S.C. § 103

The examiner states that the primary references relied upon in the rejections under § 103, i.e., Rense, Okamoto, Robson, and Le Suer, do not disclose the functionality ratio recited in appellants' claims.⁵ To remedy this deficiency, the examiner relies upon Cullen and Palmer.

Cullen discloses a charge molar ratio of polyalkene to maleic anhydride of about 1:0.5 to 1:5 (col. 2, lines 60-62),

⁵Appellants acknowledge (brief, page 17) that in Okamoto's example 1, assuming the molecular weight is a number average molecular weight, the functionality ratio is between 1.17 and 1.29, which overlaps with the range recited in appellants' claims. As pointed out by appellants', see *id.*, the molecular weight in that example falls outside the range recited in appellants' claims. The examiner has not explained why Okamoto, alone or in combination with the other applied references, would have fairly suggested, to one of ordinary skill in the art, a composition wherein the number average molecular weight and functionality ratio are within the ranges recited in appellants' claims.

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and Palmer discloses use of from 0.3 to 2 or more moles of maleic anhydride per mole of polymer (col. 1, lines 66-67).

As pointed out by appellants, the ratios of Cullen and Palmer are charge ratios rather than functionality ratios. The examiner has not explained why the charge ratios would have

fairly suggested, to one of ordinary skill in the art, use of functionality ratios which are within the range recited in appellants' claims.

Moreover, the only reason relied upon by the examiner for combining the references is that they disclose using similar products in a lubricating oil. The examiner has not explained why one of ordinary skill in the art would have considered the charge ratios of Cullen and Palmer to be appropriate in the compositions of the primary references.

The examiner states that appellants incorporate in their specification Rense and Palmer for teachings of reaction products having a functionality ratio in the range of about

1.05 to 1.25 (answer, page 9). Appellants do not state that Rense and Palmer disclose such functionality ratios. Instead, appellants state (specification, page 8) that Rense and Palmer provide alternative methods to the methods which use such functionality ratios.

For the above reasons, we hold that the examiner has not carried her burden of establishing a *prima facie* case of obviousness of the invention recited in any of appellants' claims. Consequently, we reverse the rejections under 35 U.S.C. § 103.

REMAND

As discussed above, Meinhardt's claims 1, 50 and 59 indicate that the disclosed ratio of at least 1.3 is a succination ratio. Appellants' discussion of prior patents (specification, pages 7-8) indicates that it was known in the art to obtain, by use of halogen, reaction of about 65-95 wt% of a polyolefin with dicarboxylic acid material. Adjustment of Meinhardt's ratios using such a degree of reaction produces functionality ratios which include values falling within the

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range recited in appellants' claims.

We therefore remand the application to the examiner to consider whether Meinhardt, in combination with prior art which indicates degrees of substitution of Meinhardt's polyalkene with succinic groups which one of ordinary skill in the art would have considered to be suitable, would have rendered appellants' claimed invention obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103.

DECISION

The rejection of claims 27, 30-33, 44, 45, 48, 49, 56-58, 65-67 and 71-90 under 35 U.S.C. § 102(b) as being anticipated by Meinhardt, and the rejections under 35 U.S.C. § 103 of claims 27, 32, 33, 44, 45, 48, 49, 56-58, 65-67 and 71-90 over Rense in view of Cullen and Palmer, claims 27, 30-33, 44, 45, 48, 49, 56-58, 65-67 and 71-90 over Okamoto or Robson in view of Cullen and Palmer, and claims 27, 30, 44, 45, 48, 49, 56-58, 65-67 and 71-90 over Le Suer in view of Cullen and Palmer, are reversed.

REVERSED and REMANDED

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)	
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